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FURTHER NOTES ON SEMATOPHYLLUM.

Elizabeth G. Britton.

In the Bryologist for January, 1903, I stated that two attempts had been made to see the types of *Leskea recurvans* and *Leskea squarrosa* Michx. but without success. They were not to be found at the Jardin des Plantes nor in the Herbarium of M. Drake del Castillo. Miss Vail, on her visit to Paris last year, obtained information that they were in the Herbarium of M. Ferdinand Camus, who very kindly offered to loan them to me, so that at last I have been able to compare them with North American specimens distributed in Exsiccatae and with illustrations. Both the type specimens came from Richard's herbarium and the notes accompaying them are in his handwriting and are almost identical with the descriptions published by Michaux (Flor. bor. Am. **2**:311. 312. 1803) with a few omissions and transposals. These descriptions have been compared with the types.

Leskea recurvans Rich. The type specimens of "*Leskea? recurvans*" are labelled with a question mark as here indicated. There are three tufts in good condition showing an abundance of capsules both with and without the lids. The old capsules are contracted below the mouth when dry as in Plate I, Fig. 12, Bryologist, **6**:1. 1903, and all are more or less curved and unequal. The alar cells of the leaves are more inflated than figured by Sullivant in the Icones, Plate 111, Fig. 7, as much so as Icones Supplement, Plate 69, Fig. 6, and this confirms Prof. D. C. Eaton's and C. F. Austin's criticisms of these plates.

The seta varies in length from "6-8 lines," and the capsules also differ considerably in size (1-2 mm.) and degree of development. The lid also varies in length from the rostrate-apiculate shape figured by Sullivant, Icones Musci, t, 111, Figs. 11-12, to even longer and more curved forms as in Sull. Musci Alleghaniense No. 18, and Sull. & Lesq. Musci Bor. Am. No. 301b. (These specimens were distributed as *Hypnum recurvans* var.) *Leskea squarrosa* was cited as a synonym in No. 18 Musci Alleghaniense. Considering that one hundred years have elapsed since the specimens were collected their macroscopic appearance has not greatly changed. They still retain their lustre and color and are undoubtedly what has been generally known as *Hypnum recurvans* Schwaegr.

Leskea squarrosa Richard. These specimens were old and in poor condition when collected. The label states that they grew "*in humosis humidis*" and were collected by *Beauvois*. They are mixed with hepatics which give them a darker green color and only a few capsules are preserved; these are old and deoperculate. The description states that the lid was not seen. The pedicel is described as "subunciales," apparently they are all shorter than in the type of *Leskea recurvans*, only about one-half inch long. A portion of *Hypnum recurvans*, No. 301. Sull. & Lesqx. Musci Bor. Am. in the Columbia Herbarium collected agrees exactly with these type specimens of *Leskea squarrosa*, and indicate that the differences are due to the greater moisture of the locality where they grew.

As previously stated in the BRYOLOGIST, specimens of *Hypnum recurvans* have been found growing on wet cushions of *Leucobryum*, where the leaves were scarcely recurved and distinctly "*squarrose*." It is evident that *Leskea squarrosa* represents a form of *Leskea recurvans* with more spreading leaves, just as *Hypnum laxepatulum* is a similar form of *Sematophyllum delicatulum*. These differences are not of specific importance, for the leaves may be flat and spreading on the younger branches and strongly recurved on the older ones of the same tuft, as seen in the type specimens. The leaves are long-pointed and sharply serrate at apex and the alar cells yellow and vesicular as in all the forms and varieties of this species.

Sematophyllum recurvans (Rich.) E. G. B. BRYOLOGIST **5**:65. 1902.

Leskea recurvans (Rich.) Mx. Fl. Bor. Am. **2**:311. 1803.

Hypnum recurvans Beauv. Prod. Aetheog. 73. 1803.

Raphidostegium recurvans Jaeg. & Sauerb. Adumb. 400. 1877.

Plants in glossy yellowish-green mats, pulvinate, with irregularly pinnate, creeping stems on the circumference, branches simple or divided, up to 10 or 15 mm. long, erect or decumbent, crowded with circinate leaves, recurved on both sides of the stem, with few small paraphyllia, leaves 1 mm. long, acuminate, serrate above the middle, the margins slightly revolute, basal cells yellow, porose, alar cells larger, rounded and inflated, upper linear-vermicular, perichaetial leaves longer, more acuminate and more sharply serrate at apex. Dioicous, the antheridia in small, leafy axillary buds, antheridia with few paraphyses. Seta glossy, red-brown. 10–30 mm. long, capsule contracted below the mouth when dry; lid conic-rostrate, the beak varying from once to twice the length of the conical part of the lid; walls much thickened and brown, neck stomatose; peristome double, yellow, paler than the walls; teeth striate at base, papillose at apex, the inner face deeply lamellate; endostome shorter with one or two slender papillose cilia; spores smooth, .010–.015 mm. maturing in summer and autumn.

Type locality: Mts. of Carolina on wet rotten logs, Michaux.

Type specimen preserved in Herb. Richard, the property of M. Ferdinand Camus, at Paris.

Exsiccatae: Drummond N. Am. Mosses No. 196 in part 1828. Sull. Musci All. No. 18. 1848. Sull. & Lesqx. Musci Bor. Am. No. 301–301b. 1856. Nos. 446 and 447 in part 1865. Austin Musci App. Nos. 340–341. 1870–7. Macoun Canadian Mosses No. 229; Small Mosses S. U. S. No. 14.

Grout N. Am. Musci Pleu. No. 1, agrees very well with the type of *Leska recurvans.*

Distribution: N. B., Nfd., Quebec, Ont., to Manitoba. Eastern U. S. from Maine to N. C. Central States from Minnesota to Missouri.

VAR. SQUARROSA (Brid.) Britton. n. var.

Leskea squarrosa Rich. Michx. Flor. Bor. Am. **2**:312. 1803.

Plants in thin mats. Stems creeping, bright yellow and glossy or darker green, the leaves crowded, more flattened and spreading on the stems and less strongly recurved, though variable on the same plant; pedicels shorter often only 10 mm. long; capsule smaller, 1 mm.

Growing in moist humus or on damp cushions of *Sphagnum* or *Leucobryum* often mixed with other mosses and hepatics.

Type locality: Carolina, Beauvois, Michaux.

Type specimen preserved in Herb. Richard, property of M. Ferdinand Camus.

Exsiccatae: No. 62 Ohio, W. S. Sullivant 1842. Sull. Musci All. No. 17, 1848. Sull. & Lesqx. Musci Bor. Am. No. 301pp. 1856. Nos. 446pp. and 447. 1865.

No. 62, was labelled "*Hypnum cupressiforme* var." of W. S. Sullivant's Ohio Mosses distributed in 1842 with written labels, is part of a set which seems to have been the first attempt to prepare *exsiccatae* of North American mosses that Sullivant made. They were put up in small square volumes, one set of which is still preserved in its original form in the Herbarium of the Academy of Natural Sciences in Philadelphia.

Distribution: Cedar Swamp, Hackensack, N. J., Torrey; Kingwood, N.J., Best; Westville, Conn., Chatterton; Tenn., Kearney; Manitoba, Macoun.

VAR. COMPACTA (Aust.) Ms. in Herb.

Plants forming dense glossy yellow tufts matted with brown radicles. Stems erect, 2-3 cm. high; branches short and crowded with appressed leaves not flattened, pedicels often longer than the type, 15-30 mm. long.

Habitat in rich humus in wet soil or swamps. Otter Pond, N. J., Austin: Cedar swamps, N. J., and Catskill Mts., N. Y.; Tibbs Run, W. Va., C. F. Millspaugh.

New York Botanical Garden.

MOUNTING MOSSES.

B. D. GILBERT.

During last year I read and tested all the ways of mounting mosses that had been described in the BRYOLOGIST, but not one of them proved satisfactory. I wanted the mosses in such shape that they could be lifted with a pair of forceps and examined. This barred out the plan of glueing the specimens to a piece of paper or cardboard. The alternative of course was to put the specimens into pockets. But what was to be done with the specimens afterward, so that any particular species could be turned to in half a minute or less? I struggled with this problem at intervals of several months, until at last it worked out in the manner which is here described.

I bought a thin white linen paper of medium size, i. e., 17 x 22 inches, had this cut in two the short way, then cut in two again, and a third time cut in two. This left sheets 5½ x 8½ inches. I then folded each sheet the long way so that the flap was about 1¼ inches wide, turning the ends backward about a half to five-eighths inch. All of these folds can be guessed at with sufficient accuracy. The piece of the flap folded over at each end was then cut out, leaving the flap perfectly loose and free, while at the same time it was impossible for the moss enclosed to slip out. On the flap was written the name, locality and collector, the specimen with its label, if it had one, was enclosed and then the pocket was ready to be put in place.

It was my aim to use the same size and quality of sheets for mosses as was used in my general herbarium viz. 11 x 17 inches. Eight of the pockets